

■ Global Environmental Technologies

Trends, Markets, and Prospects

by the Office of Environmental Technologies Industries, Trade Development

The United States is the world's largest producer and consumer of environmental technologies. These technologies include goods and services that promote sustainable development and develop processes that are environmentally beneficial or benign. The environmental technologies sector consists of diverse fields, such as pollution control, waste management, site remediation, and monitoring and recycling.

U.S. environmental trade fell off in 2001 as a result of worldwide recession, but the global environmental technologies market still is quite large. It has an estimated total value of \$560 billion and is projected to grow to \$599 billion by 2005. In the United States, environmental technologies business encompasses some 115,000 enterprises and approximately 1.4 million jobs.

Small and medium-sized enterprises account for the majority of the companies in the U.S. environmental technologies industry, and they generate approximately 28 percent of the U.S. environmental industry's total revenue. Large companies account for almost 40 percent of revenue. Municipalities and similar public sector entities account for 32 percent of revenue and dominate water utilities, wastewater treatment, and solid waste management.

The environmental technologies sector promises export opportunities in water treatment, environmental instrumentation, and innovative products in

areas such as renewable energy and energy efficiency. For the most part, the environmental sector has evolved in response to growing concern about the risks and costs of pollution and the enactment of pollution control legislation worldwide.

■ LEADING SECTORS

Water and wastewater treatment presents the greatest opportunities in the international market. The global water market has been growing rapidly over the last decade and accounts for almost 40 percent of the world's total environmental market. U.S. companies are major exporters of water and wastewater equipment and chemicals, and they produce specialty equipment that is not available from other suppliers. U.S. companies are highly competitive in engineering, design, and consulting services for the water and wastewater

treatment sector. They are also highly competitive in environmental monitoring, instrumentation, and information systems equipment.

Globally, the environmental instrumentation (and closely related information systems) market has an estimated value of \$7.1 billion. U.S. environmental instrumentation revenues are estimated at \$3.6 billion, of which \$1.5 billion is from exports. This gives U.S. firms an astounding 33 percent share of the international market. U.S. companies are in this good position relative to their foreign competitors (mostly from Japan and Germany) because analytical requirements have been advanced in the United States much more so than other developed nations, particularly pertaining to toxics. Developing nations simply do not have the environmental infrastructure

■ PURAFIL, INC.

Exporting Air Quality

Based in Doraville, Georgia, Purafil manufactures air quality systems for the removal of corrosive, odorous, and toxic gases. Purafil products have found numerous applications, from petroleum refining and semiconductor manufacturing to pulp production and paper milling. Even museums and archives such as the Smithsonian and Sistine Chapel use Purafil filtration products to preserve their air quality and protect their treasures.

Purafil has worked with the U.S. Commerce Department for more than a decade—locally with the U.S. Export Assistance Center in Atlanta, and internationally through a variety of Commerce Department trade missions and networking events. Purafil now exports its products to more than 60 countries. To learn more about Purafil's award-winning export activities, see the September 2002 issue of *Export America*.

that demands cutting-edge instrumentation. More than 90 percent of U.S. environmental instrumentation exports head to Canada, Japan, and the European Union.

U.S. companies are quite successful in exporting environmental equipment (particularly water and wastewater apparatus and instrumentation). U.S. environmental equipment segments make up 26 percent of the environmental technologies industry and account for 59 percent of U.S. environmental exports.

Solid export opportunities also exist in fields such as automation for treatment systems and monitoring, advanced design, biological systems, and materials reuse and efficiency. Likewise, technology for instruments and information systems that utilize the Internet is another area in which U.S. companies are in a good position to gain market share over the next decade.

Significant tariff and non-tariff barriers restrict environmental trade, particularly in key emerging markets in Asia and Latin America. Relatively high tariffs on environmental products (averaging 15 to 20 percent) are present in nearly every major emerging market. In some markets such as China, the Philippines, Malaysia, and Brazil, tariffs on environmental products are as high as 40 percent. Numerous non-tariff barriers also affect worldwide trade in environmental technologies, but they are particularly onerous concerning services trade. Currently, there is an unprecedented opportunity to open key environmental markets and remove impediments to trade of environmental goods and services worldwide. On a global level, there is a growing effort to liberalize trade in environmental goods and services via multilateral and bilateral agreements.

The international market for environmental technologies is fueled by several important policy and market drivers of demand: greater global focus on

sustainable development; liberalization of environmental technologies trade via bilateral and multilateral efforts; growing industrialization and environmental awareness in key emerging markets; and broader application of environmental "best practices" by multinationals. Meanwhile, our key competitors have aggressively penetrated the large U.S. environmental market through partnerships, acquisitions, and direct sales.

A concerted U.S. government strategy, begun in 1994 through the Environmental Technologies Export Initiative, has played a major role in helping the U.S. environmental industry enhance its international competitiveness and increase its exports. In addition to the priority now placed on environmental trade liberalization, the U.S. government has focused on several key issues and initiatives that will drive opportunities for this industry (for instance, the President's National Energy Policy). Major beneficiaries of these policy objectives will be goods and services related to air pollution, water and wastewater treatment, sanitation, and clean and efficient energy.

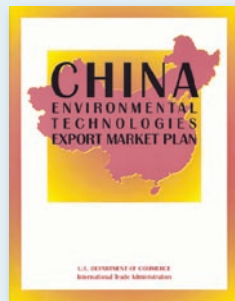
TOP MARKETS

The top 10 markets for U.S. environmental technologies exports are Canada, Japan, Mexico, Singapore, China, France, South Korea, Germany, Taiwan, and the United Kingdom. U.S. environmental exports to the top 20 markets grew 23 percent in 1998–2001 and comprised 89 percent of total U.S. environmental technologies exports in 2001. While developed nations are the largest and most advanced markets for U.S. environmental technologies, the highest growth rates are in major developing markets. Among the top 20 markets, nine are developing markets, with Mexico and China as particularly important markets for U.S. environmental technologies. Exports to China have increased dramatically in recent years, while three of the top 20 markets have suffered declines.

ITA PUBLICATIONS ON ENVIRONMENTAL EXPORTS

The U.S. Commerce Department's International Trade Administration (ITA) offers numerous publications on environmental topics, including market assessments and industry overviews. For details, visit the ITA on-line bookstore: www.trade.gov/media/publications. This site includes complete ordering information and free downloading options.

Recently Published



China Environmental Technologies Export Market Plan

China's environmental sector is full of opportunities, but entry into this vast market is daunting. This study should help U.S. companies

interested in the Chinese environmental sector in five areas: water, solid waste, air, services, and resource management.

Water and Wastewater Technologies Export Market Plan

An extensive report on the global water market, this publication targets U.S. suppliers of water and wastewater



products and services. This report contains strategies for improving U.S. industry competitiveness on a global level. It also outlines opportunities for U.S. exporters in 12 "best prospect" countries.



Korea Environmental Technologies Export Market Plan

This report is a critical resource for understanding the environmental sector in South Korea. U.S. companies that offer

environmental products and services will find this report indispensable to exploring opportunities for export to this important Asian market.

ECP SERVICE CORPORATION**Environmental Exports to Canada**

Headquartered in Des Moines, Washington, ECP Service Corporation is a small environmental products and engineering company, specializing in pollution prevention, waste reduction, and spill response for the maritime industry and general industrial operations. ECP was recruited by several U.S. Department of Commerce (DOC) officials to participate in the U.S. Commercial Service-sponsored Environmental Technologies Dealmaker at Globe 2002, a major environmental trade show in Vancouver, British Columbia.

DOC representatives worked with ECP to determine its western Canadian market objectives for Globe 2002. ECP's program for the trade show included one-on-one appointments with potential distributors, a subscription to BuyUSA.com, promotion of the ECP catalog brochure to show attendees, and an exclusive networking reception at the U.S. consul general's residence in Vancouver. As a direct result of ECP's participation in Globe 2002, ECP signed a distribution agreement with a Vancouver area firm, Rocky Mountain Environmental. Sales for ECP have been slow in Canada in the past, but the company now predicts that the new distributor will produce approximately \$150,000 in sales for this year alone.

Geographic proximity, the North American Free Trade Agreement, and a strong commitment to enhancing environmental quality make Mexico a promising emerging market. Other countries in South America may also offer greater opportunities ensuing from the U.S.-Chile Free Trade Agreement as well as the proposed Free Trade of the Americas Agreement.

Asia (excluding Japan) was the fastest-developing region, with 12 to 18 percent annual growth in the 1990s before the Asian economic crisis brought down overall growth and potential demand in these markets. Most Asian markets are recovering and have excellent long-term potential. China's size, growth, diversity, and WTO accession make this market a leading opportunity for U.S. environmental exports.

China

China already presents an enormous area of opportunity for U.S. environmental technologies. China plans to spend \$85 billion to meet its

environmental goals for its current Five-Year Plan (2001–2005). For the 2008 Olympics alone, China intends to spend \$12 billion on environmental projects.

Exports to China increased 62 percent between 1998 and 2001. Competition among foreign suppliers is fierce. U.S. market share is slipping as U.S. firms compete with government-subsidized efforts of European, Japanese, Canadian, and Australian companies that are able to tie large sums of multilaterally sourced funding, as well as offer low-interest "soft" loans and extended repayment terms. Foreign government representatives often act as development consultants and provide local Chinese authorities with free technology demonstrations and internships in order to lay the groundwork for follow-on contracts.

China's recent accession to the WTO and attendant reduction in trade barriers increases the market potential further. Given China's WTO membership, foreign service suppliers now

may establish a commercial presence in China and provide environmental services in the form of joint ventures with foreign majority ownership permitted.

The solid and hazardous waste management sector represents an excellent opportunity for U.S. companies to seize a share of what promises to become a rapidly growing market. Pollution abating and monitoring equipment has great market potential in China because the quality of locally produced equipment is poor. Major projects in China, such as the South to North Water project and the National Water Monitoring program, represent significant commercial opportunities in fields in which U.S. companies excel. Market demand is developing for innovations, cleaner production, and resource management techniques that simultaneously protect the environment and save or generate money, either through increased efficiency or by reusing and recycling by-products.

Mexico

U.S. exports of environmental technologies to Mexico grew from \$3.1 billion to approximately \$4.2 billion between 1998 and 2001. The long-term potential of this rapidly growing market is impressive. Mexico invests more money in the environmental sector than any other Latin American country, except Brazil. Water and wastewater investments represent approximately 60 percent of Mexico's environmental market, followed by air pollution control equipment at 21 percent; municipal and hazardous waste at 12 percent and 5 percent respectively; and soil remediation and the generation of alternative fuels that each represent about 2 percent of the total market.

Most recent estimates show that the United States supplies 60 percent of Mexico's total environmental technologies market (approximately \$2.3 billion) and 73 percent of Mexico's overall environmental imports. U.S. environmental imports from Mexico are minimal. U.S.

technology is extremely well received, and the Mexicans generally prefer U.S. products for their quality, compatibility, and advanced technology.

U.S. products and services have traditionally dominated Mexico's environmental market. The closest competitors are Germany, Canada, Spain, and Japan, each with less than a 5 percent share of environmental imports. U.S. companies can expect an increase in competition from European suppliers due to the free trade agreement signed between Mexico and the European Union in 2000. European companies will have an advantage over suppliers from other regions because the euro is undervalued against the Mexican peso. European firms are also able to provide their clients with extremely competitive financing terms.

Mexican President Vicente Fox has shaken up the Mexican establishment by defining environmental protection as a matter of national security. His administration has demonstrated a strong commitment to improving the environment in Mexico. This commitment has translated into a major boost in the demand for environmental products and services. Since most local governments lack adequate capital, increased service fees will be the main mechanism to attract private investment to the water and wastewater sector. President Fox recently proposed a 50 percent increase in water usage prices to pay for the much-needed infrastructure improvements in this area.

Most recently, the U.S. Export-Import Bank and Banobras (Mexico's development bank) agreed to provide a \$100 million credit line to more than 40 Mexican municipalities to fund environmental projects. In these projects, U.S. companies provide products and services in the areas of renewable energy, water, and waste. All together, these present an unprecedented opportunity for U.S. firms to join several major projects in Mexico with financing already in place.

FINANCING

Large, multilateral development banks (such as the Inter-American Development Bank, Asian Development Bank, World Bank, and others) fund projects that are a significant source of overseas revenue for U.S. environmental firms. In order to help U.S. companies capitalize on multilateral development bank (MDB)-financed projects, the U.S. Commerce Department's Office of Environmental Technologies created in January 2000 a seminar program on tools to finance exports of environmental products and services. Since then, this finance road show has traveled to 11 U.S. cities, and tentative plans have been made to produce six seminars in the first six months of 2003. The road show provides environmental business executives with a hands-on presentation of the various grants and export finance programs that are available to U.S. companies from representatives of the U.S. Export-Import Bank, the U.S. Trade and Development Agency, Ecolinks, the Global Technology Network, the

U.S. Department of Commerce, and MDB commercial liaison offices.

The global environmental market is vast and rapidly growing. Environmental technologies exports are an important part of a global trend of economic development combined with strong ecological concerns. Given the strength of the U.S. environmental industry, U.S. environmental technologies exports should continue to play a very significant role in the global market. ■

David O'Connell, David Earle, Susan Simon, and Ellen Zeytoun contributed to this article. To learn about the Office of Environmental Technologies Industries, its entire staff, and the environmental sector, visit www.environment.ita.doc.gov. Data on environmental sectors and markets vary significantly due to inexact definitions of the environmental technologies industry. Key data sources include Environmental Business International and the OECD (for market sizes and employment), as well as the U.S. Department of Commerce (for detailed trade flows based on an expanded HTS-based list of environmental technologies products).

TIERRA DYNAMIC

Cleanup in Emerging Markets

With 30 employees, Tierra Dynamic has moved boldly into overseas markets. Operating out of Phoenix, Arizona, this company specializes in the removal of toxins from soil and water. Tierra Dynamic has the rights to a patented technology that enables the firm to cultivate naturally occurring bacteria and then induce the bacteria to eat spilled hydrocarbons and other material at a rapid rate. The process allows soil remediation at three times the rate of comparable methods.

Tierra Dynamic has other international projects and applications of environmental technology. The company has focused on South America, particularly Argentina and Brazil, although it has also made forays in Southeast Asia. Over just a few years, Tierra Dynamic has developed business overseas that accounts for 25 percent of its annual revenues. According to Dan Kelley, chief executive officer of Tierra Dynamic, international business development includes tapping U.S. Department of Commerce resources: "Our success in penetrating two of the largest markets in South America is a direct result of the substantial help and assistance provided by the Commercial Service." To read more about Tierra Dynamic, see the February 2002 issue of *Export America*.